1. Definition and Overview of Warranties

- **Warranty**: A promise by a seller (e.g., manufacturer) to repair, replace, or refund defective products or services within a specified period after sale. It creates a contingent liability for the seller.
- **Key Principle (Matching Concept)**: Warranty costs are expensed in the period of sale to match expenses with related revenues, even if actual costs occur later.
- **US GAAP Guidance**:
  - ASC 460 (Guarantees): Covers accounting for guarantees, including warranties.
  - ASC 606 (Revenue from Contracts with Customers): Distinguishes warranty types and integrates them into revenue recognition.
- **CMA Exam Relevance**: Questions often involve calculating warranty expense, liability balances, and journal entries. Expect scenarios with estimates, ranges, and multi-year warranties. Common pitfalls: Confusing expense with actual costs incurred or misapplying range estimates.

2. Types of Warranties

- **Assurance-Type Warranty** (Focus of Provided Questions):
  - Assures the product meets agreed-upon specifications (e.g., free from defects at sale).
  - Not a separate performance obligation; bundled with the product sale.
  - Accounted for as a contingent liability (accrual method).
  - Expense recognized at sale based on estimated future costs.
- **Service-Type Warranty**:
  - Provides additional services beyond basic assurance (e.g., extended protection plans sold separately).
  - Treated as a separate performance obligation under ASC 606.
  - Revenue deferred and recognized over the warranty period (e.g., straight-line).
  - **CMA Tip**: If a warranty requires additional payment from the customer, it's likely service-type. Questions may test differentiation—assurance-type is "included" in product price without extra charge.
- **Additional Info for CMA**: Hybrid warranties (both assurance and service elements) require allocation. Disclosures include nature, duration, and estimated liabilities (ASC 460-10-50).

3. Accounting for Assurance-Type Warranties

- **Recognition and Measurement**:
  - Accrue warranty expense and liability at the time of sale if it's probable (likely to occur) and reasonably estimable.
  - Use historical data, industry benchmarks, or engineering estimates for costs.
  - Formula for Warranty Expense: **Sales Revenue × Estimated Warranty Cost Percentage**.
    - Percentage includes all expected future costs (labor, parts, repairs) over the warranty period, regardless of when incurred.
  - If actual costs differ from estimates, adjust in future periods (prospective approach; no restatement).
- **Handling Ranges of Estimates** (From Question 1):
  - If loss is probable and estimable within a range (e.g., $1M–$3M), and no amount in the range is better than others, accrue the **minimum amount** ($1M).
  - Disclose the range in footnotes if material.
  - **CMA Tip**: Do not defer or ignore; accrual is required even without a "best" estimate. Contrast with contingencies: If not probable/estimable, disclose only (ASC 450).
- **Journal Entries**:
  - At Sale/Year-End Accrual: **Dr. Warranty Expense** (Income Statement) **Cr. Warranty Liability** (Balance Sheet) Amount = Estimated future costs for sales in the period.
  - When Costs Incurred (e.g., repairs): **Dr. Warranty Liability Cr. Cash/Accounts Payable/Inventory** (for actual costs paid).
- **Multi-Year Warranties** (From Questions 2, 6):
  - Expense the full estimated cost in the year of sale, even if costs span multiple years (e.g., $250 in Year 1 + $750 in Year 2 = $1,000 total expensed at sale).
  - Track liability balance: Initial accrual minus actual costs paid.
- **Year-End Adjustments** (From Question 3):
  - If no accrual at sale, record full estimated liability at year-end (e.g., 250 units × $150/unit = $37,500).
  - **CMA Tip**: Exam may test omission at sale, requiring adjusting entry.

4. Key Calculations and Examples from Provided Questions

Use these to practice; they illustrate common exam patterns.

- **Question 1 (Range Estimate)**:
  - Range: $1M–$3M probable loss; no better estimate.
  - Accrue minimum: $1M (Dr. Warranty Expense, Cr. Warranty Liability).
  - Why not others? Disclosure only if not probable; no entry if remote; no deferral.
- **Question 2 (Basic Accrual)**:
  - Sales: $9M; Estimated cost: 4% = $360K expense.
  - Ignore actual returns ($65K) for expense; they reduce liability.

    - Liability at end: $360K - $65K = $295K (not asked).
- **Question 3 (Year-End Adjustment)**:
    - Units sold: 250 at $6K each; Estimated cost: $150/unit = $37.5K.
    - No costs incurred yet: Full accrual at year-end (Dr. Expense, Cr. Liability).
- **Question 4 (Liability Balance)**:
    - Units: 80K; Defect rate: 4% = 3.2K defective × $95 = $304K initial liability.
    - Actual costs: $159K → Ending liability: $304K - $159K = $145K.
- **Question 5 (Partial-Year Sales)**:
    - Sales: $2.695M (post-June 1); Cost: 3% = $80.85K expense.
    - Actual expenditures ($40.6K) reduce liability, not expense.
- **Question 6 (Multi-Year Split)**:
    - Year 2 sales: 100 units; Total cost/unit: $1K ($250 Y1 + $750 Y2).
    - Year 2 expense: 100 × $1K = $100K (full future costs).
    - Ignore prior year or actual payments for current expense.
- **Question 7 (Simple Percentage)**:
    - Sales: $3M; Cost: 4% = $120K expense.
    - Actual costs ($67.5K) ≠ expense; liability end: $120K - $67.5K = $52.5K.
- **Question 8 (Expenditures Breakdown)**:
    - Sales: $3.85M; Cost: 4% = $154K expense.
    - Actual ($58K labor/parts) reduces liability; expense is full estimate.
- **Common Pattern in Questions**:
    - Expense = Full estimated future costs at sale.
    - Liability = Expense accrued - Actual costs paid.
    - High correct response rates (69–83%) indicate straightforward calcs, but watch for distractors like using actual costs as expense.

5. Additional Helpful Information for CMA US Exam

- **Contingencies vs. Warranties**: Warranties are a type of loss contingency (ASC 450). If remote, no accrual/disclosure; if reasonably possible, disclose; if probable/estimable, accrue.
- **Disclosures (ASC 460-10-50)**:
    - Nature and terms of warranty.
    - Aggregate liability amount.
    - Changes in liability (roll-forward table: beginning balance + accruals - payments + adjustments = ending).
    - **CMA Tip**: Part 1 (Financial Reporting) may ask for footnote disclosures.
- **Tax Implications**: Warranty expenses are deductible when accrued (economic performance rules under IRC Sec. 461), but CMA focuses more on GAAP.
- **International Comparison (for CMA Global Perspective)**: IFRS (IAS 37 Provisions) similar to GAAP for assurance-type; no strict assurance/service split, but provisions accrued if probable (>50% likely).
- **Advanced Scenarios for Exam Prep**:
    - **Cash-Basis vs. Accrual**: Some small firms use cash basis (expense when paid), but GAAP requires accrual for public/reporting entities.
    - **Extended Warranties Sold Separately**: Treat as unearned revenue; recognize over time.
    - **Product Recalls**: Similar to warranties; accrue if probable (e.g., Takata airbag case as real-world example).
    - **Math Tips**: For closed-ended questions, explain steps (e.g., defective units = total units × rate; total expense = defective × cost/unit).
- **Study Tips for CMA**:
    - Practice with ranges and multi-year calcs; use tables for roll-forwards.
    - Review Gleim/Wiley CMA materials for more questions.
    - Common Errors: Using actual costs for expense; accruing max in range; confusing types.
    - Pass Rate Insight: Questions like these have 36–83% first-attempt success; lower on ranges due to nuance.